

School Bus Crash Investigation
Dynamic Science, Inc.
Case DS99005
Contract DTNH22-94-D27058
Task 131
North Carolina
April, 1999

This research was supported by the National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation. The opinions, findings, and recommendations contained herein are those of the authors, and do not necessarily represent those of NHTSA.

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no responsibility for the contents or use thereof.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

TABLE OF CONTENTS

Background	1
Summary	1
Interior School Bus Diagram	3

Appendices:

- A. Traffic Collision Report
- B. VIN - Decoded

Background

This crash involved a 1995 International/Thomas School Bus (Vehicle 1) which was struck on the right side in a T-type collision by a 1996 Dodge van. (Vehicle 2). The school bus was traveling northbound on an undivided two lane, two way roadway entering an intersection. Vehicle 2 was traveling westbound on an undivided two way, two lane roadway approaching the intersection. Vehicle 2 initiated a right hand turn at the intersection to travel northbound. It failed to yield to Vehicle 1 and the frontal plane of Vehicle 2 struck the right side of Vehicle 1. The crash was selected for an additional follow-up investigation due to reported injuries. A remote-style investigation was conducted during which information was sought from the investigating police jurisdiction and the bus owners (the school district). A police report has been obtained, but the Special District Attorney for the county has refused further cooperation. This report is being presented based solely on the information contained in the police report. If additional information becomes available, then a modified report will be prepared.

Summary

This crash occurred on an autumn weekday during the early morning hours. No adverse weather conditions were reported. The speed limit was 72 kph (45 mph) for Vehicle 1, and 40 kph (25 mph) for Vehicle 2.

Vehicle 1 was a full size 1995 International 3800 4X2 FBC chassis Thomas school bus. The bus was driven by a restrained 54 year old female driver at an estimated speed of 64 kph (40 mph). There was one 6 year old, unrestrained, female passenger on the school bus. The bus was traveling northbound on a two lane, two way, undivided roadway in a suburban area, approaching an intersection.

Vehicle 2, a 1996 Dodge van, was traveling westbound on a two lane, two way, undivided roadway. At the intersection, Vehicle 2 initiated a right turn in order to travel northbound on the intersecting roadway. It is unknown if Vehicle 2 stopped for the stop sign, but, according to the police report, Vehicle 2 was traveling at approximately 16 kph (10 mph) when it struck Vehicle 1. The left frontal plane of Vehicle 2 struck the right side of Vehicle 1 in the area of the door.

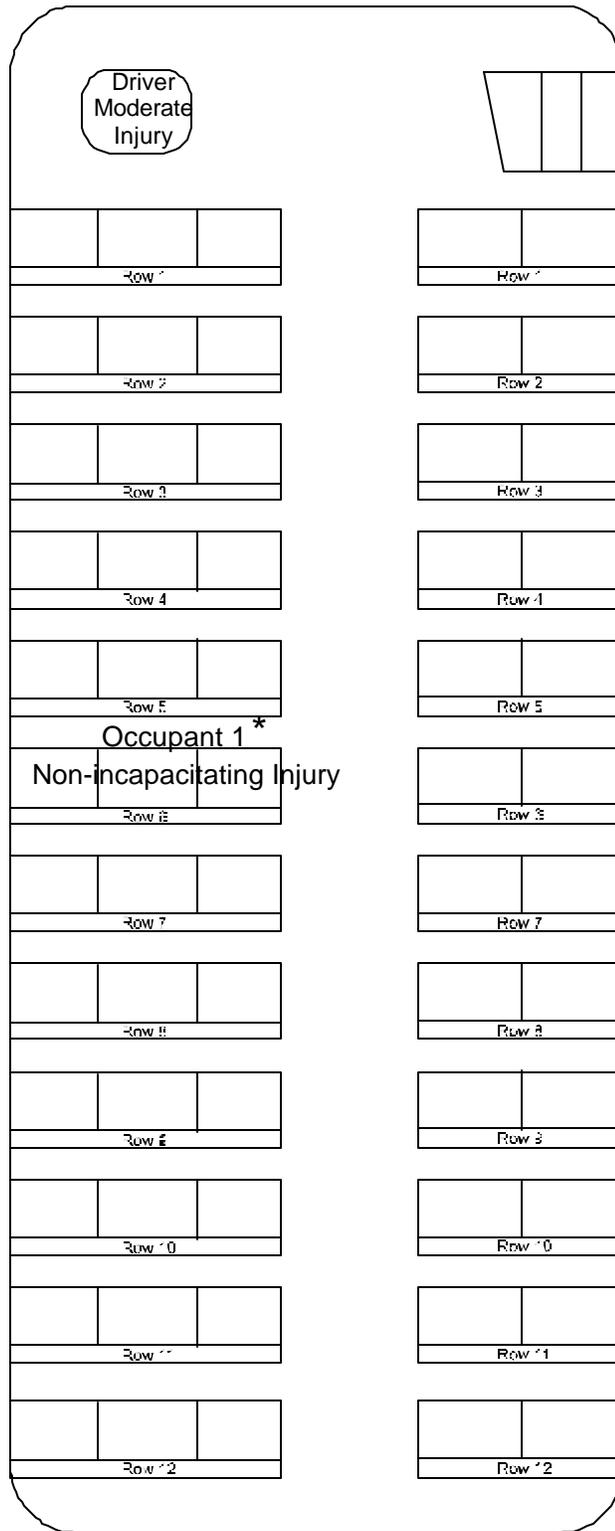
Following the initial impact, the left rear of Vehicle 2 then struck the right side, rear section of the bus in a sideslap type configuration. Following the second impact, Vehicle 1 proceeded approximately 180 feet, rotating 80 degrees during a clockwise rotation, and came to final rest on the east shoulder area, facing northeast. Vehicle 2 traveled approximately 78 feet, while rotating about 120 degrees clockwise, and came to final rest on the east shoulder area, facing southeast.

Case DS99005

The driver of Vehicle 1 suffered moderate injuries and was reported to have been transported to an area hospital for treatment. The exact seating position of the student is unknown. The police report lists the position as “left rear.” Her injuries were described as non-incapacitating and she was apparently transported to an area hospital via ambulance.

The driver of Vehicle 2 received serious injuries according to the police report and was transported to an area hospital via ambulance.

Both vehicles were towed from the scene due to crash damage. The extent of damage to the school bus was estimated as \$45,000, and the damage to the van was estimated as \$25,000.



* Exact seating location is unknown